

September 25, 1999

Ursula Kramer, Director
Division of Air Quality
Utah Department of Environmental Quality
P.O. Box
Salt Lake City, Utah 841

ATTENTION: Nando Meli

Dear Director Kramer,

Notice of Intent to Test Burn Alternate Fuel

The Los Angeles Department of Water and Power (LADWP), Operating Agent for the Intermountain Power Project (IPP), is hereby submitting this Notice of Intent to test burn **petroleum (pet) coke** at the Intermountain Generating Station (IGS) located in Delta, Utah. LADWP is requesting an experimental approval order for this test burn. The IGS is a coal fired steam-electric plant located in Millard County. Specifically, Intermountain Power Service Corporation (IPSC) intends to trial burn pet coke to determine burn characteristics and performance parameters in preparation for possible future continuous use of this type of fuel. After this experimental fuel test, another Notice of Intent will be filed if our evaluation warrants the use of pet coke on a continuous or permanent basis.

As required by Utah Administrative Code R307-401-2, the following information is provided:

- (1) **PROCESS DESCRIPTION:** IGS is a fossil-fuel fired steam-electric generating station that primarily uses coal as fuel for the production of steam to generate electricity. Both bituminous and subbituminous coals are utilized. Fuel oil and used oil are also combusted for light off and energy recovery.

IGS already has in place bulk handling equipment for the unloading, transfer, storage, preparation, and delivery of solid fuel to the boilers. No changes of this equipment are required nor expected. Coal and pet coke will be proportionately blended using present equipment and procedures.

With the proposed use of pet coke, slightly more limestone will be used for the removal of acid gases in the wet scrubbers. No other changes in the usage of other raw materials or bulk chemicals are required nor expected.

PROPOSED CHANGE: IGS will receive and experimentally combust several train loads of pet coke (about 10,000 tons) over a 45 day period at various blends with coal. The average combustion rate will be 20% pet coke to 80% coal ratio based on thermal energy (rather than by weight). Pet coke is a solid fossil fuel with higher thermal energy per pound than coal, which means less pet coke is burned than coal for equal heat input. Pet coke is derived from the petroleum refining process.

Comparisons of fuel characteristics (estimated) are described below:

	<u>FUEL TYPE</u> (average estimates)			
	COAL	PETROLEUM COKE		BLENDED
Parameter (units)		average	range	(80/20 calculated)
Ash (%)	9.94	0.35	0.13 - 3.35	8.13
Sulfur (%)	0.54	3.23	0.96 - 7.23	1.11
Thermal (BTU/lb)	11,851	15,440	13,130 - 15,646	13,404
Chlorine (ppm)	330	185	30 - 1260	300
Fluorine (ppm)	74	3	0 - 3	60
Mercury (ppm)	0.05	0.07	0.0009 - 0.36	0.05
Nickel (ppm)	5	484	385 - 591	101
Chromium (ppm)	28	3	0.2 - 3.5	23

NOTE: Data provided for pet coke are estimates only, based on available industry-wide information. These are not limits, but arithmetic means bounded by wide ranges of concentrations that are dependent on fuel source and type. Solid fuels naturally have wide variability in characteristics. Characteristics specific to pet coke burned at IGS will be sampled and tested at delivery for experimental burn. The analysis of pet coke characteristics will provide more comprehensive data than provided above, including other constituents that may be present.

- (2) With one exception (nickel), the expected composition and physical characteristics of emissions resulting from the use of petroleum coke as fuel are expected to be unchanged from present emission composition and characteristics with regard to emission rates, temperature, air contaminant types, and concentration of air contaminants. Petroleum coke has higher thermal energy per pound than coal, requiring less tonnage to be combusted to meet comparable heat input. The mass flow of chimney effluent may change proportionately with the fuel usage and combustion air to meet comparable heat input. The pollution control devices (PCD) include a fabric filter and wet scrubber.

The following emission rate parameters are provided as required:

Parameter	Before PCD	After PCD	Resulting Increase with Pet Coke Use*
Particulates	96,000 lbs/hr	50 lbs/hr	none
Nitrogen Oxides	0.41 lbs/mmBtu	0.41 lbs/mmBtu	none
Sulfur Dioxide	1.8 lbs/mmBtu	0.06 lbs/mmBtu	unknown - none expected - see (3)
Temperature	325 F	120 F	none
Stack Gas Volume	130,000,000 scfh	130,000,000 scfh	none
Hydrochloric Acid	0.67 lbs/ton	0.02 lbs/ton	none
Hydrofluoric Acid	0.14 lbs/ton	0.004 lbs/ton	none
Mercury	0.0001 lbs/ton	0.00005 lbs/ton	negligible
Nickel	0.2 lbs/ton	0.0003 lbs/ton	0.5 tons/yr
Chromium	0.05 lbs/ton	0.0001 lbs/ton	none

*NOTE: Annualized estimates, based upon average fuel concentrations, if a 20% pet coke blend was burned continuously year round.

- (3) Present pollution control equipment for combustion include dual register low NOx burners, baghouse type fabric filters for particulate removal, and flue gas desulfurization scrubbers. Baghouse filters operate at nominal 99.95% efficiency, wet scrubbers operate at nominal 90% efficiency. Control equipment for the handling and transfer of solid fuel include dust collection filters. No changes in the operation of the fabric filters are required nor expected. Increased limestone utilization in the scrubbers will occur to maintain sulfur dioxide emissions within permit limits. Sulfur emissions are not expected to increase, based upon performance testing with high sulfur coal during initial operation of IGS. However, even with an unexpected increase in emission rates for sulfur, permit conditions will not be exceeded.
- (4) The present emission point for the IGS boilers is a lined chimney that discharges at 712 feet above ground level (5386 feet above sea level). The chimney location is 39° 39' 39" longitude, 112° 34' 46" latitude.

- (5) Emissions from boiler combustion are continuously sampled and monitored at the chimney for nitrogen oxides, sulfur oxides, carbon dioxide, and volumetric flow. Opacity is measured at the fabric filter outlet. Other parameters recorded include heat input and production level (megawatt load). Monitoring will remain unchanged. Other emissions not directly monitored are calculated using emission factors based on fuel concentration.
- (6) Operation at IGS is 24 hours per day. This will not change.
- (7) No construction will occur to accommodate alternate fuels. Approval and commencement of the trial burn is requested as soon as possible.
- (8) No other specifications or related information will be available until after the test burn and measurements.
- (9) IGS operates under a Title V permit (#2700010001). IPSC intends to operate in full compliance with that permit and applicable requirements during the test burn. No deviations from permit conditions are expected.

Applicability Determinations

New Source Performance Standards. IGS operates as a New Source Performance Standard (NSPS) power plant, regulated under Title 40 of the Code of Federal Regulations, Part 60, Subpart Da. A regulatory review of 40 CFR 60(Da) finds that the use of petroleum coke as an alternate fuel does not fall under NSPS applicability as a modification. A modification is defined at 40 CFR 60.14 to include any change in operation of a source which increases the maximum hourly emissions of a Part 60 regulated pollutant above the maximum achievable during the previous five years. (See 40 CFR 60.14(h)).

Prevention of Significant Deterioration. Information will be collected during the trial burn to make calculations for determining if a significant net increase in actual emissions will occur if pet coke were burned on a continuous basis. Although it is unlikely the use of pet coke will trigger a review under PSD as a major modification, that determination will have to be made after the trial burn data is collected and compiled.

Should you require further information to expedite the approval of this request, please contact.....

Cordially,

Substitute Table for Page 3.

The following maximum emission rate parameters are provided for information only:

Parameter	Blended Maximum	Before PCD	After PCD	Resulting Increase with Pet Coke Use*
Particulates		96,000 lbs/hr	50 lbs/hr	none
Nitrogen Oxides		0.41 lbs/mmBtu	0.41 lbs/mmBtu	none
Sulfur Dioxide		1.8 lbs/mmBtu	0.15 lbs/mmBtu (Permit Limit)	unknown - none expected at average - see (3)
Temperature		325 F	120 F	none
Stack Gas Volume		130,000,000 scfh	130,000,000 scfh	none
Hydrochloric Acid	516ppm	1.03 lbs/ton	0.03 lbs/ton	25 tons/yr
Hydrofluoric Acid		0.14 lbs/ton	0.004 lbs/ton	none
Mercury	0.112ppm	0.0002 lbs/ton	0.0001 lbs/ton	0.1 tons/yr
Nickel	477ppm	0.95 lbs/ton	0.0007 lbs/ton	1.5 tons/yr
Chromium		0.05 lbs/ton	0.0001 lbs/ton	none

*NOTE: Annualized estimates, based upon maximum fuel concentrations, if a 20% pet coke blend was burned continuously year round.